WATERSHED MANAGEMENT AREA 17

DELAWARE BAY DRAINAGE

The watershed management area includes watersheds draining Delaware Bay except those in Cape May County. The principal rivers here are the Maurice, Salem, and Cohansey. The area overlies Salem and Cumberland Counties and includes the following watersheds:

Maurice River
Mill Creek
Alloways Creek
Manantico Creek
Stow Creek
Salem River (Creek)
Dividing Creek
Manumuskin Creek
Cohansey River
Miles Creek

Summary of ambient physical/chemical monitoring stations and classifications

Station	Classification
Salem River at Woodstown	FW-2 Nontrout
Cohansey River at Seeley	FW-2 Nontrout
Maurice River at Norma	FW-2 Nontrout
Maurice River near Millville	FW-2 Nontrout

The following monitoring location has been discontinued as of 1991:

Salem River at Courses Landing (FW-2 Nontrout)

OVERALL MANAGEMENT AREA ASSESSMENT

- Swimmable Support Status:

WATERWAY	LOCATION	STATUS
Salem River	at Woodstown	Partial Support
Cohansey River	at Seeley	No Support
Maurice River	at Norma	Partial Support
Maurice River	near Millville	Partial Support

- Summary of Aquatic Life Support Status (Number of stations within each assessment category). Note: See the Biological Assessment Table located at the end of this section for details regarding macroinvertebrate assessments within the watershed management area.

No Impairment: 16 Mod. Impairment: 35 Severe Impairment: 7

MAPS here

SALEM RIVER

WATERSHED DESCRIPTION

The Salem River drains an area of 114 square miles and flows 32 miles from Upper Pittsgrove Township west to Deepwater, then south to the Delaware River. The area lies within Salem County, the major population center being Salem City. Much of the lower section of the river is tidal. Major tributaries to the Salem River include Mannington Creek, Game Creek, Majors Run, and Fenwick Creek. There are some ponds on this creek; a major impoundment is East Lake.

Land use in this watershed is about 40 percent cropland, with the rest woodland, tidal/freshwater marshes, urban, and pasture. There are approximately 10 NJPDES permitted dischargers here - about half are municipal and half industrial. Surface water has been classified FW-2 Nontrout, except for the tidal portions, which are SE-1.

WATER QUALITY ASSESSMENT

Physical/Chemical Water Quality

Locations: Salem River at Woodstown

Dissolved Oxygen: Acceptable.

Temperature: Two violations (out of twenty samples) of the upper criterion for non-trout waters were recorded. Summertime water temperatures tend to run warm at this location.

Nutrients: High levels are observed. Median inorganic nitrogen (NO_2 + NO_3) is 1.83 mg/l, with some values exceeding 4.0 mg/l. Total phosphorus is also elevated, with a median of 0.15 mg/l and 85% of values exceeding the criterion of 0.10 mg/l. Samples are high with oxygen-demanding material; BOD levels were frequently above 4.0 mg/l, some samples exceeding 6.0.

Bacteria: Slightly elevated. The geometric mean is 64.4 MPN/100 ml and 45% of samples exceeded the 400 MPN/100ml criterion.

Heavy Metals: Two of the five lead samples collected during the period of review exceeded the chronic aquatic life criterion. In addition, arsenic was observed at 2 ug/l in three of five samples, which can cause concern for drinking water use.

Summary: The Salem River - Woodstown monitoring site is located at the outlet of Memorial Lake and therefore may not be indicative of true stream conditions due to the retentive properties of the lake. The Salem River here is degraded by elevated nutrients and oxygen-demanding substances, warm summer-time temperatures, and possibly by lead and arsenic. Conditions appear, however, to have improved since the previous assessment (data from 1986 to 1991) when total phosphorus averaged 0.29 mg/l, more than half the

inorganic nitrogen samples exceeded 2.0 mg/l and the fecal coliform geometric mean was 371.

Biological Monitoring

Most locations biologically monitored on the Salem River (upper portion only) contain moderately impaired biota, except at Woodstown where the community was severely impaired. Tributaries of the Salem were a mixture of moderate and severe impairment. See the Biological Assessment Table located at the end of this section for details regarding macroinvertebrate assessments within the watershed.

POINT SOURCE ASSESSMENT

The upper watershed of the Salem River has water quality problems resulting from the combined effects of both point and nonpoint sources. It is hoped that an upgrade in the Woodstown SA (see table below) will lead to an improvement in water quality conditions here. In tidal sections of the Salem River, conditions are thought to be generally poor. A limited assimilative capacity and numerous point sources in the lower watershed are considered to be reasons for the suspected water quality conditions.

The following industrial/commercial discharger is reported to been releasing effluent of poor quality in the watershed and had been under enforcement action:

FACILITY	LOCATION	RECEIVING WATER	POLLUTANT	COMMENTS
Merton Coles' Dairy Farm	Pliesgrove, Salem Co.	Nichomus Run	sewage discharge and milking operation wastewater	Discharge occurred from an overflow pipe from the on-site subsurface sewage disposal system. Discharge has ceased following a September 1995 Notice of Violation, but final resolution is still pending.

The following wastewater treatment plant has been upgraded and/or expanded and has renewed operation:

FACILITY	LOCATION	RECEIVING STREAM	COMMENTS
Woodstown SA	Salem Co.	Salem River	New tertiary plant put into service in April 1994.

NONPOINT SOURCE ASSESSMENT

The upper Salem River is believed to be receiving occasional nonpoint source runoff from agricultural and urban sources. Agricultural sources include cropland, feedlots, and animal holdings. Urban contributors include surface and road runoff, septic tank leachate, building construction runoff, and mining runoff. The agricultural runoff is believed to be threatening the fishery of Game Creek, a tributary to the Salem River. The Lower Salem watershed receives nonpoint source pollution from croplands, pastures, feedlots, animal holdings, road and housing construction sites, septic systems, suburban surfaces, and road runoff. These sources are estimated to be at moderate to severe levels. The fishery resource of Swedes Run, a tributary to the lower Salem, is believed to be degraded by the combined inputs of industrial point sources and nonpoint road runoff. In addition,

local authorities have noted that housing developments, storm sewers, and pasturelands all present moderate to severe problems to water quality in Swedes Run.

Local officials have pointed out that the Salem River Watershed contains some 13 landfills, which although at present do not produce any "known" impact, do represent a potential problem and hence should be monitored.

DESIGNATED USE ASSESSMENT

Most locations biologically monitored on the Salem River (upper portion only) partially support the aquatic life support designated use, except at Woodstown where the community was severely impaired and the use is not supported. Tributaries of the Salem were a mixture of full and partial support. The swimmable (primary contact) use is partially met at Woodstown because of moderate fecal coliform counts in the river.

COHANSEY RIVER

WATERSHED DESCRIPTION

The Cohansey River is nearly 30 miles long, draining 105 square miles of eastern Salem County to the Delaware Bay. This is an area of very low relief which results in numerous small tributaries. Sunset Lake and Mary Elmer Lake are among 10 major impoundments in this drainage basin. The largest population center is Bridgeton, from which the river becomes tidal.

The main land use of this watershed is agriculture, but much of this area is forested. There are only a few NJPDES permitted discharges in the watershed. Waterways are classified FW-2 Nontrout, except those portions that are SE-1 (downstream of Sunset Lake) and FW-1 (within State parks and wildlife management areas).

WATER QUALITY ASSESSMENT

Physical/Chemical Water Quality

Locations: Cohansey River at Seeley

Dissolved Oxygen: Acceptable.

Temperature: Acceptable.

Nutrients: Median inorganic nitrogen (NO_2 + NO_3) is very high, 4.4 mg/l with some values exceeding 5.0 mg/l. Total phosphorus is somewhat elevated with a median of 0.07 mg/l and 60% of values exceeding the criterion of 0.05 mg/l for waters flowing into lakes and impoundments.

Bacteria: Elevated. The geometric mean is 246 MPN/100 ml and 30% of samples exceeded the 400 MPN/100ml criterion.

Heavy Metals: Two of the four lead samples collected during the period of review exceeded the chronic aquatic life criterion.

Summary: Cohansey River at Seeley is impaired from excess nitrogen and poor sanitary quality. Total phosphorus is mildly elevated and lead may be a problem. Current conditions appear to be identical to conditions observed during the last review period using data collected between 1986 and 1991.

Biomonitoring:

The Cohansey drainage exhibited somewhat better conditions compared to those encountered in the Salem River watershed (see the Biological Assessment Table located at the end of this section). Here, only one location was severely impaired - Parsonage Run in Upper Deerfield Township. The Cohansey itself is nonimpaired at its up-stream most location in Alloway Township, and moderately impaired along its remaining length. With the

exception of Parsonage Run, mentioned above, the tributaries to the Cohansey are all moderately impaired.

POINT SOURCE ASSESSMENT

The Cohansey River watershed has some impacts from point sources, but they are not clearly defined. The presence of municipal and industrial point sources likely influences local water quality conditions. No enforcement actions are currently reported in this watershed. In addition, there are no hazardous waste sites in the watershed suspected of impacting surface water quality.

NONPOINT SOURCE ASSESSMENT

Nonpoint source pollution, most likely from agriculture, is cited by local officials as the probable cause of the moderately degraded water quality in the Cohansey River at Seeley. Numerous nonpoint pollution sources are known to impact the Upper Cohansey River and have resulted in siltation and the impairment of the local fisheries. Pollution sources include both agricultural and suburban development activities; specific sources include runoff from croplands, pasture lands, feedlots, housing developments, roads and urban surfaces. In addition, septic systems have been described by local authorities in this region as creating a severe water quality problem. Landfills, too, are noted as a potential problem, yet their actual impact on local waterways at the present time is not known.

Impacts in the Lower Cohansey watershed are much the same. Suspected sources, both agricultural and urban, include runoff from crop production, pasture lands, feedlots, animal holdings, tree harvesting, urban surfaces, house construction, road maintenance runoff, surface mining, as well as leachate from septic systems. Of these sources, cropland runoff is known to have brought about the degradation of local fishing and shellfish harvesting waters. Here as in the Upper Cohansey, landfills are noted as a potential problem.

DESIGNATED USE ASSESSMENT

The Cohansey River does not support the swimmable (primary contact) use based on monitoring at Seeley. The Cohansey itself fully supports the aquatic life support use at its upstream-most location in Alloway Township, and partially supports the use along its remaining length of its freshwater section. With the exception of Parsonage Run (no support), the tributaries to the Cohansey all partially support the use. The tidal sections of the Cohansey do not support the shellfish harvesting designated use because of excessive bacteria levels.

MAURICE RIVER

WATERSHED DESCRIPTION

The Maurice River has a drainage area of 386 square miles and meanders south for 50 miles through Cumberland County to the Delaware Bay. The population centers are Vineland and Millville. The major tributaries of this river are Scotland Run, Manantico Creek, Muskee Creek, Muddy Run, and the Manumuskin River. There are about 20 major lakes in this area, with Union Lake the largest. The river is tidal below Union Lake. Principal land use in this watershed is agriculture, with much of the area forested. Of the 15 to 20 NJPDES permitted dischargers in the watershed, most are industrial/commercial. The Maurice watershed is primarily classified FW-2 Nontrout, with some SE-1 and FW-1.

WATER QUALITY ASSESSMENT

Physical/Chemical Water Quality

Locations: Maurice River at Norma and near Millville

Dissolved Oxygen: Acceptable at both locations.

Temperature: Acceptable, although summertime temperatures at Millville tend to run on the warm side, often above 20^0 C.

Nutrients: At Norma nutrients are at acceptable levels. Median inorganic nitrogen (NO_2 + NO_3) is 1.6 mg/l. Median total phosphorus is 0.01 mg/l, with 8% of values exceeding the 0.05 mg/l criterion.

Down-stream near Millville, nutrient levels are slightly higher; median inorganic nitrogen (NO_2 + NO_3) is 1.8 mg/l, and median total phosphorus is 0.02 mg/l, with 31% of values exceeding the 0.05 mg/l criterion.

Bacteria: Mildly elevated at both locations. At Norma, the geometric mean is 25 MPN/100 ml and 28% of samples exceeded the 400 MPN/100ml criterion. Near Millville, the geometric mean is 33 MPN/100 ml, with 23% of samples exceeding the 400 MPN/100ml criterion.

Heavy Metals: Near Millville, one of three lead samples collected during the period of review exceeded the chronic aquatic life criterion. In addition, arsenic was observed at 5, 7 and 26 ug/l in the three samples collected during the period of review. These levels are all elevated and are a cause of concern for drinking water use.

The Norma monitoring site represents a US Geological Survey National Stream-Quality Accounting Network (NASQAN) station, and as such, does not monitor for the normal assemblage of heavy metals including lead, zinc, copper, chromium, arsenic.

Summary: Water quality conditions are good at Norma and relatively good as monitored near Millville. Nutrients are acceptable at Norma and slightly elevated at Millville. Bacterial quality is slightly elevated at both locations. What is of concern in terms of human health (potability) are the elevated arsenic concentrations recorded at Millville. Current conditions appear to more or less mirror conditions observed between 1986 and 1990.

No monitoring is performed in the freshwater portions of the Maurice River below Union Lake; however, the quality of the river is suspected to be degraded downstream of the lake. Regional-specific monitoring in the future should focus on this issue. In the lower tidal sections of the Maurice River, bacterial contamination of shellfish growing areas has resulted in these waters being condemned for shellfishing.

Biomonitoring:
The Maurice River is monitored above Union Lake where it exhibits a mixture of both nonimpaired and moderately impaired communities. Tributaries to the Maurice, both above and below Union Lake, exhibit a similar mixture of nonimpaired and moderately impaired communities. Severe impairment was limited to Indian Run in Pittsgrove Township and Blackwater Branch in Franklin Township. See the Biological Assessment Table located at the end of this section for details regarding macroinvertebrate assessments within the watershed.

POINT SOURCE ASSESSMENT

Current enforcement activities within the Maurice River watershed are limited to one - Shield Alloy (see Point Source Pollution Table). In the Lower Maurice River, point source effluents are believed to have led to the impairment of shellfish harvesting waters.

In the past, two hazardous waste sites were reported to be contaminating surface waters - Vineland Chemical Corporation site and Shield Alloy. The Vineland Chemical Corporation has caused widespread arsenic contamination of sediments in Union Lake, while Shield Alloy is contaminating Hudson Branch with chromium (see Point Source Table below).

Current status of permitted wastewater discharges within the watershed that were reported to be in noncompliance with their discharge permits:

FACILITY	LOCATION	RECEIVING WATER	POLLUTANT	COMMENTS
Shield Alloy	Newfield, Glou-cester Co.	Hudson Br of Maurice River	Chromium	Industrial waste discharged into unlined lagoon where it percolated into surface water. An ACO was executed in June of 1991 for "pump & treat" to contain the contamination. The remaining impacts on the surface water still need to be evaluated.

The following wastewater treatment plant has been upgraded and/or expanded and has renewed operation:

FACILITY	LOCATION	RECEIVING STREAM	COMMENTS
Bayside State Prison	Maurice River Twp., Cumberland Co.	Riggins Ditch to Delaware Bay	STP was upgraded to tertiary treatment and became operational in April 1995.

NONPOINT SOURCE ASSESSMENT

Tributaries to Still Run, Little Ease Run, and Reeds Branch, in the northern-most assessed areas of the Maurice River watershed, are believed to be receiving storm water runoff. Still Run is suspected of suffering fish kills and overall water quality degradation from moderate to large quantities of both agricultural and urban nonpoint source pollution. Suspected sources impacting this waterway, as well as Scotland Run, are septic tank leachate, runoff from crop and pasture lands, urban surfaces, road and home construction and road maintenance. The Upper Maurice River itself receives both agricultural and suburban nonpoint source pollution from crop production, tree harvesting, road and home construction, road maintenance and road runoff. Additional pollution sources include sludge disposal activities and local landfills. This runoff is suspected to be contributing to a reported general decline in water quality and to fish kills in the Upper Maurice River.

Farther downstream in the area surrounding Union Lake, runoff is believed to be coming from urban storm sewers, urban surfaces, sludge disposal sites, landfills, hazardous waste sites, and dam construction activities, all of which are estimated to be on the rise. Additional sources reported are surface mining, road maintenance, and housing construction. Below Union Lake, pollution from storm sewers and urban surfaces, while estimated to be on the decline, is believed to have contributed to the impairment of shellfish harvesting areas farther downstream. In this region also, landfills are viewed as a possible source of pollution whose actual impact upon local waters is not yet known.

Other suspected sources of nonpoint pollution are tree harvesting activities, home construction, urban and road surfaces, dredging, and septic systems. Of the two large tributaries to the Lower Maurice, Manantico Creek receives occasional runoff from croplands, construction sites, urban surfaces, storm sewers, tree harvesting, as well as from what is estimated to be increasing levels of road construction and maintenance. Manamuskin River is believed to receive pollution in its headwaters from croplands, and is impacted in its mainstem by road construction, road runoff, suburban surface runoff, landfills, and dredging. To the west, a third tributary (Muddy Run) is suspected of experiencing degradation from cropland and pastureland runoff, pollution from road and housing construction sites, surface mining, and sludge disposal.

DESIGNATED USE ASSESSMENT

The Maurice River at Norma and near Millville is considered to be partially meeting the swimmable (primary contact) designated use, based on fecal coliform monitoring.

The Maurice River above Union lake exhibits a mixture of both full and partial support of the “aquatic life support” designated use. Tributaries to the Maurice, both above and below Union Lake, exhibit a similar mixture of full and partial support of this use. No support is limited to Indian Run in Pittsgrove Township and Blackwater Branch in Franklin Township.

The tidal sections of the Maurice River are condemned for shellfish harvesting.

BIOLOGICAL ASSESSMENT TABLE: AREA 17

Mgt Area	Watershd	Site ID	Water Body	Location	Municipality	Sample Date	Biological Impairment Rating
17	78	AN0690	Salem R	Commissioners Rd (Rt 581)	U Pittsgrove Twp	Aug 24, 1995	moderately impaired
17	78	AN690A	Salem R	Newkirk Sta Rd	U Pittsgrove Twp	Oct 17, 1990	moderately impaired
17	78	AN0691	Salem R	Mill St	Woodstown	Aug 22, 1995	severely impaired
17	78	AN0692	Nichomus Run	Rt 45	Pilesgrove Twp	Aug 22, 1995	severely impaired
17	78	AN0693	Salem R	Kings Hwy	Sharptown	Aug 22, 1995	moderately impaired
17	78	AN0694	Major Run	Pointers - Sharptown Rd	Mannington Twp	Aug 22, 1995	severely impaired
17	78	AN0695	Two Penny Run	E Quillytown Rd	U Penns Neck Twp	Aug 22, 1995	moderately impaired
17	78	AN0696	Game Ck	Rt 48	U Penns Neck Twp	Aug 22, 1995	moderately impaired
17	78	AN0697	Culliers Run	Bassett Rd	Mannington Twp	Sep 12, 1995	moderately impaired
17	78	AN0698	Swedes Run	Swedes Bridge Rd	Mannington Twp	Sep 12, 1995	moderately impaired
17	81	AN0699	Alloway Ck	Yorktown - Friesburg Rd	Alloway Twp	Aug 24, 1995	moderately impaired
17	81	AN0700	Cool Run	Stockington - Pleasant Hill Rd	Alloway Twp	Aug 24, 1995	moderately impaired
17	81	AN0701	Cedar Bk	Alloway - Aldine Rd	Alloway Twp	Sep 21, 1995	moderately impaired
17	81	AN0702	Alloway Ck	Welchville - Alloway Rd	Alloway	Sep 12, 1995	moderately impaired
17	81	AN0703	Deep Run	Waterworks Rd	Alloway	Sep 12, 1995	moderately impaired
17	81	AN0704	Alloway Ck trib	Perry Rd	L Alloway Ck Twp	Sep 12, 1995	moderately impaired
17	86	AN0705	Sarah Run	Telegraph Rd	Quinton Twp	Oct 12, 1995	moderately impaired
17	86	AN0706	Stow Ck	Buckhorn Rd	L Alloway Ck Twp	Sep 21, 1995	moderately impaired
17	86	AN0707	Canton Drain	Maskell Mill Rd	L Alloway Ck Twp	Sep 21, 1995	moderately impaired
17	86	AN0708	Raccoon Ditch	Davis Mill Rd	Stow Ck Twp	Sep 21, 1995	moderately impaired
17	82	AN0709	Cohansey R	Beal Rd	Alloway Twp	Oct 19, 1995	non-impaired
17	82	AN0709	Cohansey R	Beal Rd	Alloway Twp	Jan 4, 1996	non-impaired
17	82	AN0710	Cohansey R	Rt 540	Hopewell Twp	Oct 19, 1995	moderately impaired
17	82	AN0711	Parsonage Run	Finley Rd	U Deerfield Twp	Oct 19, 1995	severely impaired
17	82	AN0712	Cohansey R	Silver Lk Rd	U Deerfield Twp	Sep 26, 1995	moderately impaired
17	82	AN0713	Barrett Run	Maple Ave	Hopewell Twp	Oct 12, 1995	moderately impaired
17	82	AN0714	Barrett Run	W Ave	Bridgeton	Sep 26, 1995	moderately impaired

BIOLOGICAL ASSESSMENT TABLE continued:

Mgt Area	Watershd	Site ID	Water Body	Location	Municipality	Sample Date	Biological Impairment Rating
17	82	AN0715	Indian Fields Br	Grove St	Bridgeton	Sep 26, 1995	moderately impaired
17	83	AN716A	Town Swamp Bk	Buckshutem Rd	Fairfield Twp	Oct 25, 1990	moderately impaired
17	83	AN716B	Mill Ck	Rt 650	Greenwich Twp	Oct 12, 1995	moderately impaired
17	82	AN0717	Pine Mt Ck	Rt 623	Greenwich Twp	Oct 12, 1995	moderately impaired
17	90	AN0718	Cedar Ck	Main St	Cedarville	Oct 19, 1995	moderately impaired
17	90	AN0719	Pages Run	Rt 553	Downe Twp	Oct 19, 1995	moderately impaired
17	92	AN0721	Scotland Run	Rt 322	Monroe Twp	Nov 1, 1995	non-impaired
17	92	AN0721	Scotland Run	Rt 322	Monroe Twp	Feb 13, 1996	moderately impaired
17	92	AN0722	Scotland Run	Clayton - Williamstown Rd (Rt 610)	Clayton	Feb 22, 1996	non-impaired
17	92	AN0723	Scotland Run	Rt 538	Franklin Twp	Feb 14, 1996	non-impaired
17	92	AN0724	Indian Br	Rt 47	Franklin Twp	Feb 14, 1996	moderately impaired
17	92	AN724A	Indian Br	Sta Rd	Janvier (Franklin Twp)	Mar 26, 1991	non-impaired
17	92	AN724A	Indian Br	Sta Rd	Janvier (Franklin Twp)	Jun 10, 1991	moderately impaired
17	92	AN0725	Scotland Run	Rt 40	Malaga	Feb 15, 1996	moderately impaired
17	92	AN0726	Ltl Ease Run	Carpenter Rd	Glassboro	Nov 1, 1995	moderately impaired
17	92	AN0727	Ltl Ease Run	Grant Ave	Franklin Twp	Feb 15, 1996	moderately impaired
17	92	AN0728	Ltl Ease Run	Leonard Cake Rd	Franklin Twp	Feb 15, 1996	moderately impaired
17	92	AN0729	Still Run	Aura Rd	Aura (Elk Twp)	Nov 1, 1995	non-impaired
17	92	AN0730	Still Run	Ltl Mill Rd	Franklin Twp	Feb 22, 1996	moderately impaired
17	92	AN0731	Reed Br	Royal Ave	Franklin Twp	Feb 15, 1996	moderately impaired
17	92	AN0732	Still Run	Rt 40	Franklin Twp	Feb 15, 1996	non-impaired
17	92	AN0733	Maurice R	Willow Grove Rd	Pittsgrove Twp	Jan 18, 1996	moderately impaired
17	92	AN0734	Burnt Mill Br	W Blvd	Newfield	Feb 14, 1996	moderately impaired
17	92	AN734A	Burnt Mill Br	Forest Grove Rd	Newfield	Mar 26, 1991	moderately impaired
17	92	AN0735	Burnt Mill Br	Rt 55	Vineland	Jan 18, 1996	non-impaired
17	92	AN0736	Green Br	Crow Pond Rd	Pittsgrove Twp	Mar 25, 1991	non-impaired
17	92	AN0736	Green Br	Crow Pond Rd	Pittsgrove Twp	Jun 10, 1991	moderately impaired

BIOLOGICAL ASSESSMENT TABLE continued:

Mgt Area	Watershd	Site ID	Water Body	Location	Municipality	Sample Date	Biological Impairment Rating
17	92	AN0736	Green Br	Crow Pond Rd	Pittsgrove Twp	Sep 23, 1991	non-impaired
17	92	AN0736	Green Br	Crow Pond Rd	Pittsgrove Twp	Dec 9, 1991	non-impaired
17	92	AN0737	Green Br	Jesse Bridge Rd	Pittsgrove Twp	Jan 18, 1996	moderately impaired
17	92	AN0738	Blackwater Br	Main Rd	Franklin Twp	Feb 14, 1996	severely impaired
17	92	AN0739	Blackwater Br	Maurice R Pkwy	Vineland	Feb 14, 1996	moderately impaired
17	92	AN0740	Maurice R	Almond Ave	Vineland	Dec 5, 1995	non-impaired
17	92	AN0741	Muddy Run	Burlington Rd	U Pittsgrove Twp	Jan 17, 1996	moderately impaired
17	92	AN0742	Muddy Run	Dutch Row Rd	Elmer	Jan 18, 1996	moderately impaired
17	92	AN0743	Palatine Br	Shirley Rd	U Pittsgrove Twp	Jan 17, 1996	moderately impaired
17	92	AN0744	Palatine Br	Dubois Rd	Pittsgrove Twp	Jan 18, 1996	moderately impaired
17	92	AN0745	Muddy Run	blw Palatine Lk	Pittsgrove Twp	Dec 12, 1995	moderately impaired
17	92	AN0746	Indian Run	Cedar Ln Rd	U Pittsgrove Twp	Jan 17, 1996	moderately impaired
17	92	AN0747	Indian Run	Husted Sta Rd	Pittsgrove Twp	Jan 17, 1996	severely impaired
17	92	AN0748	Muddy Run	Parvins Mill Rd	Pittsgrove Twp	Jan 17, 1996	moderately impaired
17	92	AN0749	Muddy Run	Lebanon Rd	Pittsgrove Twp	Nov 30, 1995	moderately impaired
17	92	AN0750	Parvin Br	Rt 55	Vineland	Dec 12, 1995	moderately impaired
17	92	AN0751	Maurice R	Sherman Ave	Vineland	Nov 30, 1995	moderately impaired
17	92	AN0752	Lebanon Br	Sherman Ave	Deerfield Twp	Nov 30, 1995	non-impaired
17	92	AN0753	Mill Ck	off Spur 552 (Union Lk WMA)	Millville	Dec 5, 1995	non-impaired
17	92	AN0754	White Marsh Run	Hogbin Rd	Millville	Oct 25, 1990	moderately impaired
17	92	AN0754	White Marsh Run	Hogbin Rd	Millville	Mar 12, 1991	moderately impaired
17	92	AN0754	White Marsh Run	Hogbin Rd	Millville	May 16, 1991	moderately impaired
17	92	AN0754	White Marsh Run	Hogbin Rd	Millville	Jul 11, 1991	moderately impaired
17	92	AN0755	White Marsh Run	Rt 555	Millville	Nov 30, 1995	moderately impaired
17	92	AN0756	Buckshutem Ck	Rt 555	Millville	Oct 31, 1995	moderately impaired
17	85	AN0757	Cedar Br	Italia Ave	Vineland	Dec 5, 1995	moderately impaired
17	85	AN0758	Panther Br	Italia Ave	Vineland	Dec 5, 1995	moderately impaired

BIOLOGICAL ASSESSMENT TABLE continued:

Mgt Area	Watershd	Site ID	Water Body	Location	Municipality	Sample Date	Biological Impairment Rating
17	85	AN0759	Manantico Ck	Hance Bridge Rd	Vineland	Nov 28, 1995	moderately impaired
17	85	AN0760	Manantico Ck	Rt 49	Millville	Nov 28, 1995	non-impaired
17	85	AN0761	Berryman Br	Rt 49	Millville	Nov 28, 1995	non-impaired
17	87	AN0762	Manumuskin R	Old Mays Landing Rd	Maurice R Twp	Nov 28, 1995	non-impaired
17	87	AN762A	Manumuskin R	Main Ave	Milmay	Mar 26, 1991	severely impaired
17	87	AN0763	Manumuskin R	Fries Mill (off Cumberland - Port Elizabeth Rd)	Maurice R Twp	Nov 28, 1995	non-impaired
17	92	AN0764	Muskee Ck	Rt 548	Maurice R Twp	Oct 31, 1995	non-impaired